

Serial No.: 10/766,139
Docket No.: PVI-5541DIVCON
Preliminary Amendment dated March 31, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of claims:

1-17. (Canceled)

18. (New) A two-part prosthetic heart valve for implantation within a native heart valve, comprising:

a tissue-engaging base portion expandable from a collapsed state to an expanded state; and

a leaflet subassembly including a metallic support structure and three heart valve leaflets, the leaflets being attached to the support structure at commissures;

wherein the leaflet subassembly is attachable to the tissue-engaging base portion for providing a prosthetic heart valve.

19. (New) The two-part prosthetic heart valve of claim 18, wherein the support structure comprises a wireform and wherein the three heart valve leaflets are attached to the wireform.

20. (New) The two-part prosthetic heart valve of claim 18, wherein the support structure is self-expandable.

21. (New) The two-part prosthetic heart valve of claim 18, wherein the support structure comprises an elastic wireform for supporting the leaflets and wherein the wireform provides alternating commissures and cusps.

Serial No.: 10/766,139
Docket No.: PVI-5541DIVCON
Preliminary Amendment dated March 31, 2006

22. (New) The two-part prosthetic heart valve of claim 18, wherein the three heart valve leaflets are individual leaflets attached to the support structure separately from each other.

23. (New) The two-part prosthetic heart valve of claim 22, wherein the support structure has a fabric covering and the three heart valve leaflets attach to the support structure at least in part by stitching along the fabric covering.

24. (New) The two-part prosthetic heart valve of claim 18, wherein the three heart valve leaflets are formed of bioprosthetic tissue.

25. (New) The two-part prosthetic heart valve of claim 18, wherein the tissue-engaging base portion is plastically-expandable from its collapsed state to its expanded state.

26. (New) The two-part prosthetic heart valve of claim 18, wherein the tissue-engaging base portion is self-expandable from its collapsed state to its expanded state.

27. (New) The two-part prosthetic heart valve of claim 18, further comprising a first sterile container for holding the tissue-engaging base portion before implantation.

28. (New) The two-part prosthetic heart valve of claim 27, further comprising a second sterile container for holding the leaflet subassembly before implantation.

29. (New) A method of replacing a native heart valve with a two-part prosthetic heart valve, comprising:

providing a two-part prosthetic heart valve, each part being expandable from a collapsed state, one part comprising a tissue-engaging base and the other part comprising

Serial No.: 10/766,139
Docket No.: PVI-5541DIVCON
Preliminary Amendment dated March 31, 2006

a metallic support structure having three heart valve leaflets mounted thereon, the two parts being connectable for forming the prosthetic heart valve;

storing the two parts of the prosthetic heart valve in sterile containers;

compressing the tissue-engaging base and the support structure;

delivering the compressed tissue-engaging base and support structure through a tube to a heart valve annulus; and

expanding the tissue-engaging base and support structure, wherein the tissue-engaging base is expanded into contact with the heart valve annulus.

30. (New) The method of claim 29, wherein delivering the base to the annulus is accomplished by advancing the base through the patient's vasculature.

31. (New) The method of claim 30, wherein delivering the base to the annulus is accomplished by advancing the base through a catheter introduced into a peripheral artery.

32. (New) The method of claim 31, further comprising introducing a catheter into the femoral artery and advancing the catheter through the iliac artery, abdominal aorta and aortic arch and wherein delivering the base to the annulus is accomplished by advancing the base through the catheter.

33. (New) The method of claim 29, wherein delivering the base to the annulus is accomplished via a minimally-invasive port in the patient's chest.

34. (New) The method of claim 33, wherein the minimally-invasive port in the patient's chest is located between ribs in the patient's thorax.

35. (New) The method of claim 29, wherein the tissue-engaging base is plastically-expandable from its collapsed state to its expanded state.

Serial No.: 10/766,139

Docket No.: PVI-5541DIVCON

Preliminary Amendment dated March 31, 2006

36. (New) The method of claim 35, wherein the tissue-engaging base is expanded by inflating a balloon within the tissue-engaging base.

37. (New) The method of claim 29, wherein the support structure comprises a substantially annular portion with upstanding commissures and wherein the three heart valve leaflets are supported at the commissures.